



Formation Flypast (+ Optional Missing Man)							
By Vosene							
Falcon Version	Patch Status	Theatre of Operations (Check one)					
Allied Force	V1.013	Balkans		Balkans 2005		Balkans 2010	
		Korea	X	Korea 2005		Korea 2010	
Package Information							
Takeoff time	Callsign	Task	Target	Time on Target	Package #	AC # & Type	
17:35:40	Lobo1	FRAPS	Flypast	N/A	1610	4x F-16C-52	
17:36:40	Python1	Flypast	Osan Airbase	17:56:00	1644	4x F-16C-52	
17:37:40	Panther1	Flypast	Osan Airbase	17:57:00	1627	4x F-16C-52	
17:38:40	Falcon1	Flypast	Osan Airbase	17:58:00	1433	4x F-16C-52	
17:39:40	Cowboy1	Flypast	Osan Airbase	17:59:00	1329	4x F-16C-52	
17:40:43	Fury1	Flypast	Osan Airbase (this is the missing man flight)	18:00:00	1576	4x F-16C-52	
(1) Blue colour indicates for human use. Red colour indicates for FRAPS recorders on ground only.							
Parameters:			All Flights	Achieve Flypast within following parameters: Timing: +/- 5 seconds Altitude: +/- 50 feet Airspeed: +/- 25 knots			
Air to Air Weapon Loadout (Free or Fixed)			Fixed (Nil)				
Air to Ground Weapon Loadout (Free or Fixed)			Fixed (Nil)				
Mission Flight plan (Free or Fixed)			Fixed				

BACKGROUND

This briefing and TE are designed to be used for Sqn flypasts with the option of a missing man formation for the final Flight (Fury1).

OBJECTIVE

The objective of the flypast TE is for each of the four flypast flights to fly down the centre of Osan runway in Fingertip formation at 1500ft AMSL and 400 knots, passing display centre (Stp 8) at the precise time they have been allocated. Fury1 has the option of performing the Missing Man formation. Parameters to be achieved are as per the table above.

WEATHER

Temp - 21°C

Wind - 0 knots at 351°

Visibility - Excellent

Clouds - Clear

SETUP AND RULES

Due to the nature of this flight, ie a close formation flypast, the following setup and rules MUST be followed to maximise a smooth and stable connection for all clients:

- All clients should connect at 128upload/256 download. If their connection cannot handle this they should connect at the highest available upload/download.
- The host is to ensure invulnerability is on and clouds are disabled. All clients MUST ensure they enable these options before joining the TE.
- Once everyone commits to the TE no one is to disconnect until authorised by the host at the end of the flight. If someone is accidentally disconnected under no circumstances are they to try and rejoin.
- No texting is to be used once in the 3D world.
- Unless you are in Lobo1, no external views are to be used at any point during the flight as this can cause stability issues

ROUTE

The route and all timings/speeds are fixed. The general route is shown below. Although Home Plates are different, all flypast flights have the same Steerpoints from 4 through 12:



STEERPOINT PARAMETERS

All Flight Leads are to comply with the following Steerpoint Speed, Altitude and Formation parameters. Note that the speed restrictions can be broken to ensure that Flights arrive over the target Stp 8 (Osan airbase) at the correct time.

Due to the lack of stores on the aircraft and the low speed of the flypast, pilots may wish to use some airbrake as standard to allow higher RPM setting while still maintaining the correct airspeed:

Steerpoint	Speed (knots)	Altitude (feet AMSL ie Barometric)	Formation
1	0	0	Rolling takeoff and rejoin
2	250	3000	Route/Fingertip
3	300	3000	Route/Fingertip
4	300	3000	Route/Fingertip
5	300	3000	Fingertip
6	350	2000	Fingertip
7	400	1500	Fingertip
8 (Tgt)	400	1500	Fingertip
9	400	1500	Fingertip
10	350	2000	Fingertip
11	300	3000	Fingertip
12	300	3000	Fingertip
13	300	3000	Echelon Right
14 (Land)	300	1500 AGL (Overhead Break)	Echelon Right

STEERPOINT TIMINGS

All Flight Leads are to achieve the following timings. Note that the critical time is the TOT (Osan airbase), which must be met within +/- 5 seconds. Ignore ATC and use the active runway indicated for each location in the table below. Rolling take-offs are recommended to get airborne ASAP:

Flight	Home Plate	In-Use Runway	Take-Off	TOT (Stp 8)	Overhead Break (Landing)
Lobo1	Osan	85	17:35:40	N/A	N/A
Python1	Suwon	32L	17:36:40	17:56:00	18:05:20
Panther1	Kimpo	32L	17:37:40	17:57:00	18:10:20
Falcon1	Seoul	36	17:38:40	17:58:00	18:07:40
Cowboy1	Suwon	32L	17:39:40	17:59:00	18:08:20
Fury1	Kimpo	32L	17:40:43	18:00:00	18:13:25

Pressing 4 on the ICP will provide Flight Leads with real-time information on the predicted arrival time at the currently selected Steerpoint. In the example below there is 9 miles to Stp 8 and Fury1 is precisely on time for an 1800 arrival:

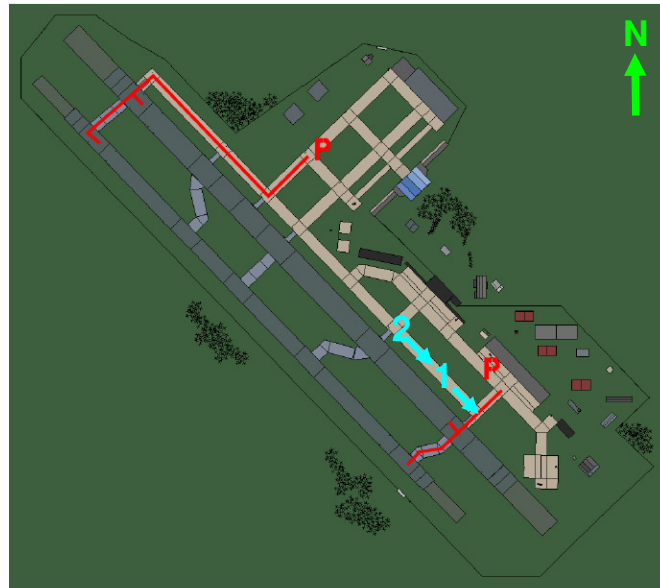


AIRBASES

Kimpo Airbase Layout

1 – Taxi start location for Panther1

2 – Taxi start location for Fury1



Kimpo

RWY	LCN	TORA	ASDA	TODA	LDA	WID	ASI	ALS	TDZE	THR PSN
32L	-	9720	9720	10690	9230	170	-	-	-	-
14R	-	9720	9720	10690	9230	170	-	-	-	-
32R	-	10890	10890	11970	10340	240	-	-	-	-
14L	-	10890	10890	11970	10340	240	-	-	-	-

Tacan 083X (25 NM) ILS 109.9 Owner ROK
Latitude 37° 35' Longitude 127° 43' Elevation 26ft

Seoul Airbase Layout

1 – Taxi start location for Falcon1



Seoul

RWY	LCN	TORA	ASDA	TODA	LDA	WID	ASI	ALS	TDZE	THR PSN
01	-	7880	7880	8660	7480	180	-	-	-	-
19	-	7880	7880	8660	7480	180	-	-	-	-
00	-	9530	9530	10480	9050	170	-	-	-	-
18	-	9530	9530	10480	9050	170	-	-	-	-

Tacan 046X (25 NM) ILS 110.9 Owner ROK
Latitude 37° 27' Longitude 128° 07' Elevation 131ft

Suwon Airbase Layout

- 1 – Taxi start location for Python1
- 2 – Taxi start location for Cowboy1



Suwon

RWY	LCN	TORA	ASDA	TODA	LDA	WID	ASI	ALS	TDZE	THR PSN
14L	-	8430	8430	9270	8000	180	-	-	-	-
32R	-	8430	8430	9270	8000	180	-	-	-	-
14R	-	6940	6940	7630	6590	250	-	-	-	-
32L	-	6940	6940	7630	6590	250	-	-	-	-

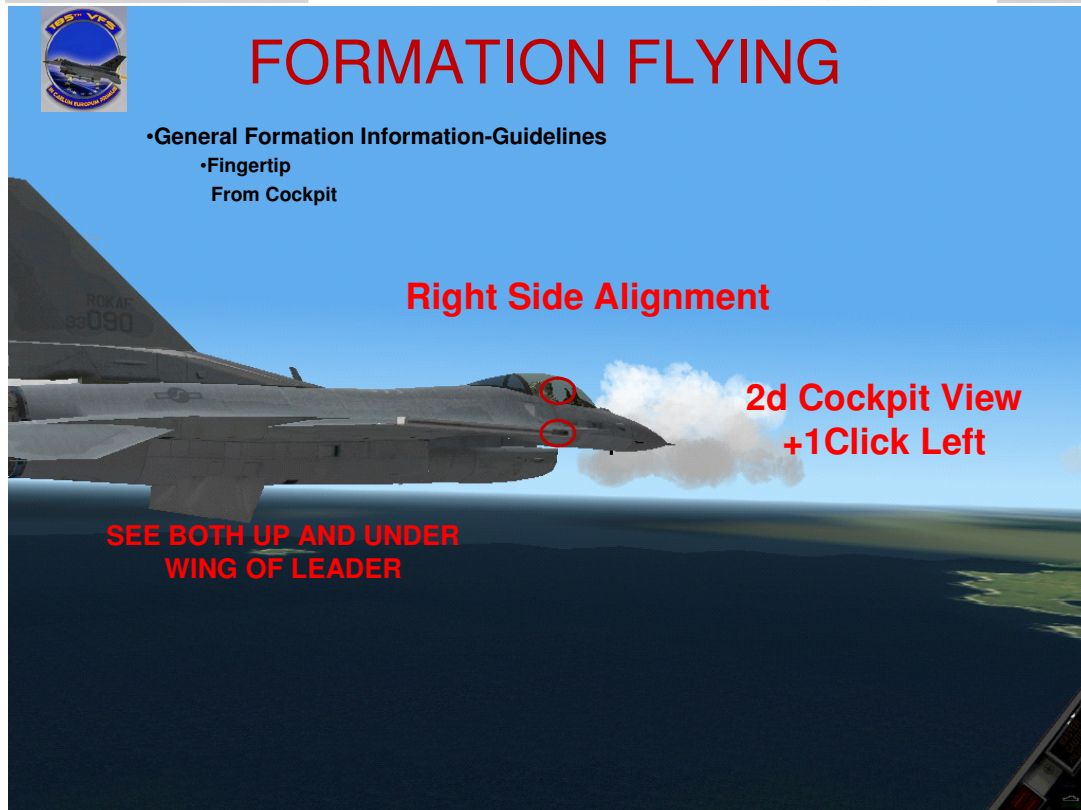
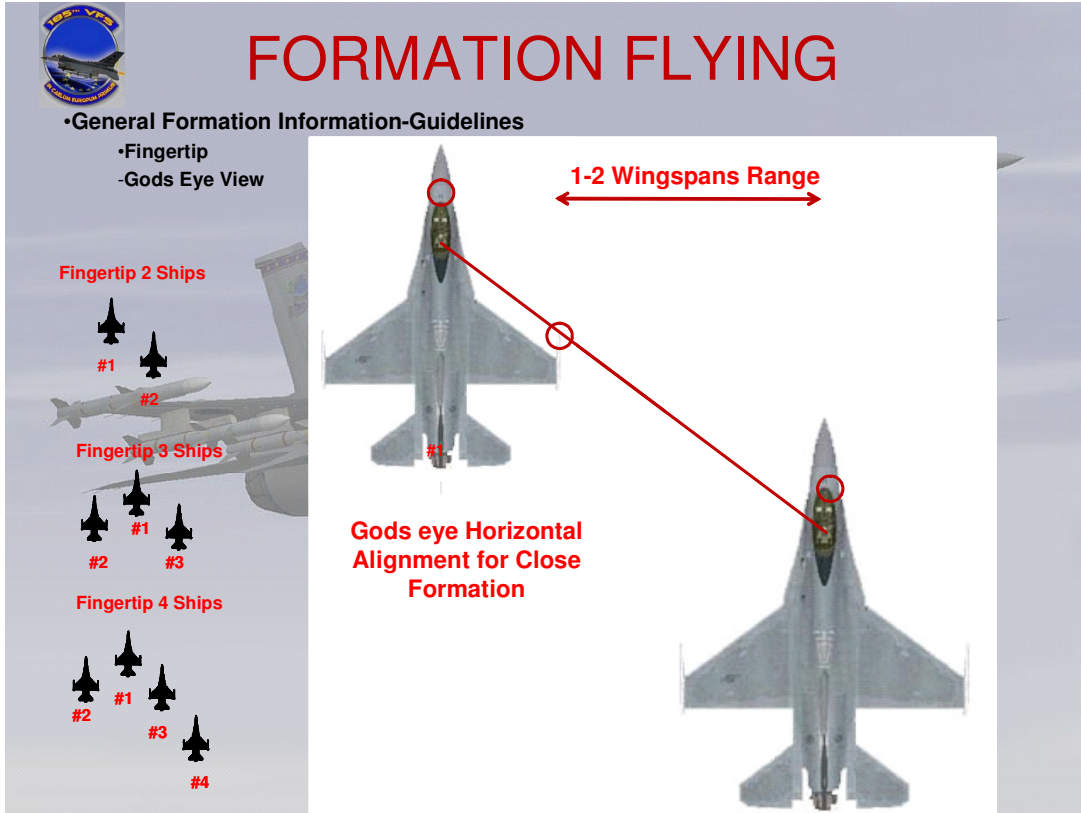
Tacan 022X (25 NM) ILS 108.5 Owner U.S.
Latitude 37° 16' Longitude 127° 58' Elevation 26ft

FORMATION

Until Stp 4 is reached, Flight Leads have the option of Selecting either Route or Fingertip formation. From Stp 4 until Stp 12, Fingertip must be used. From Stp 13 to the Overhead break, the formation is Echelon Right.

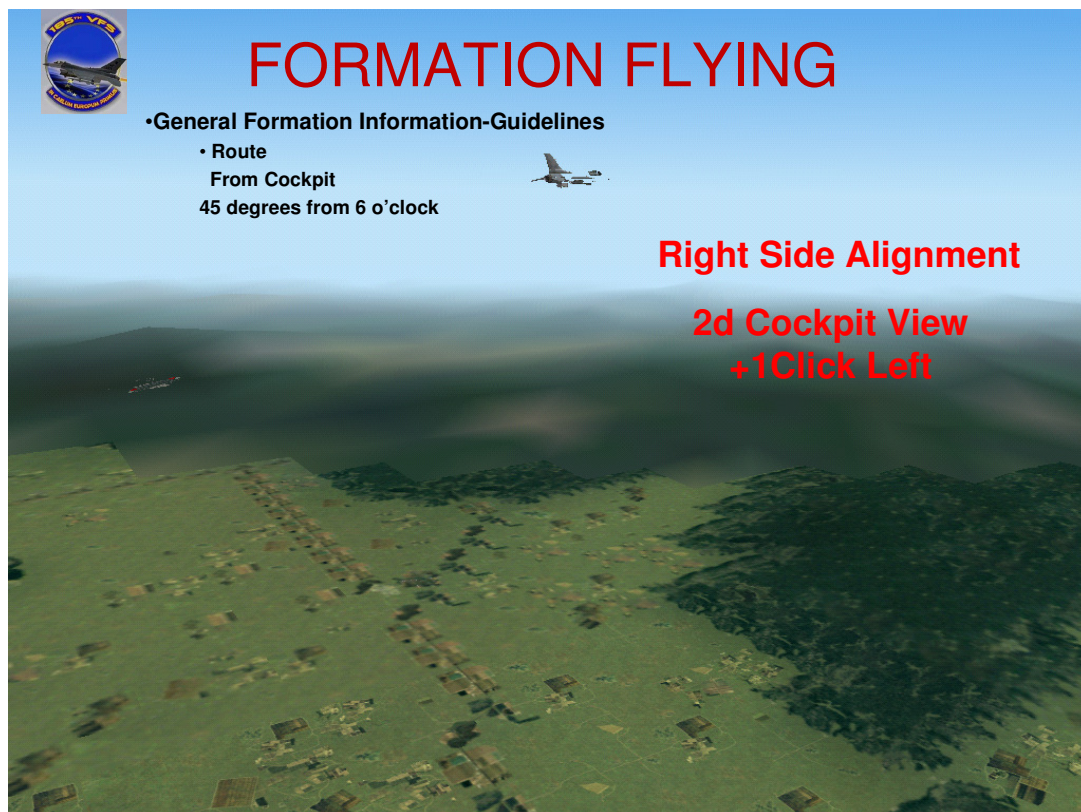
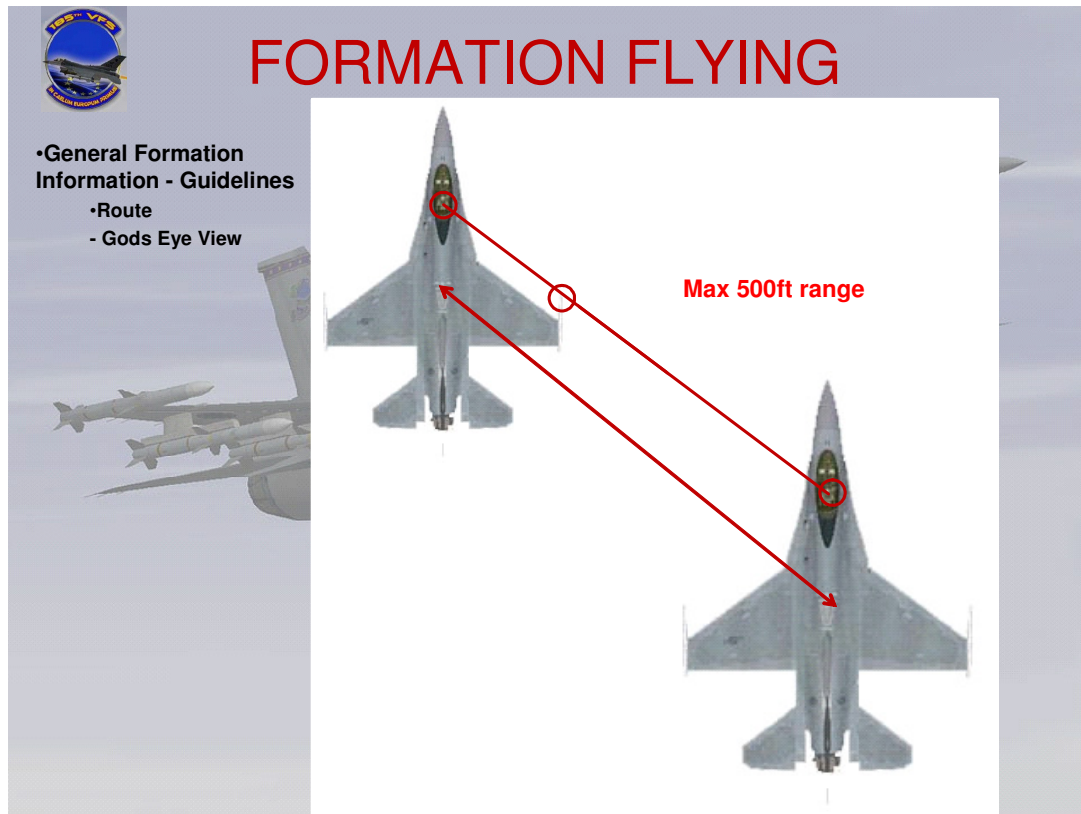
Fingertip Formation

Below are reference diagrams for maintaining the correct formation position in Fingertip:



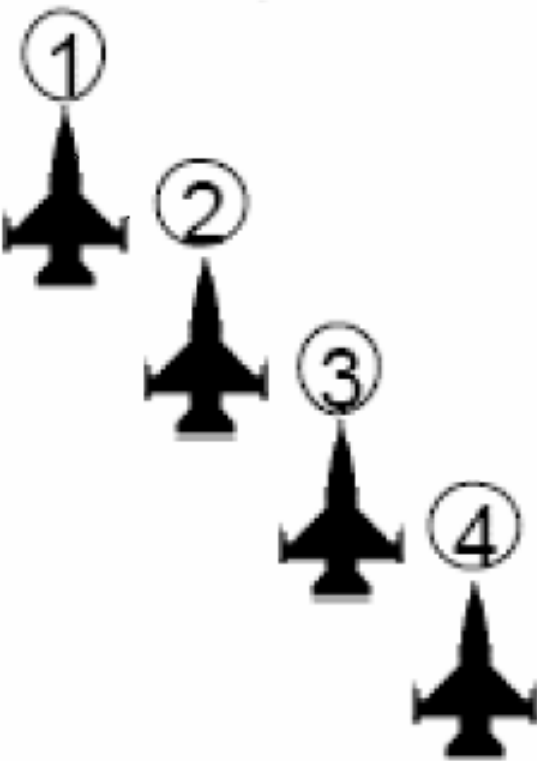
Route Formation

Same relative position as Fingertip except that ranges are greater. This allows easier station keeping, allowing time to focus on other tasks.

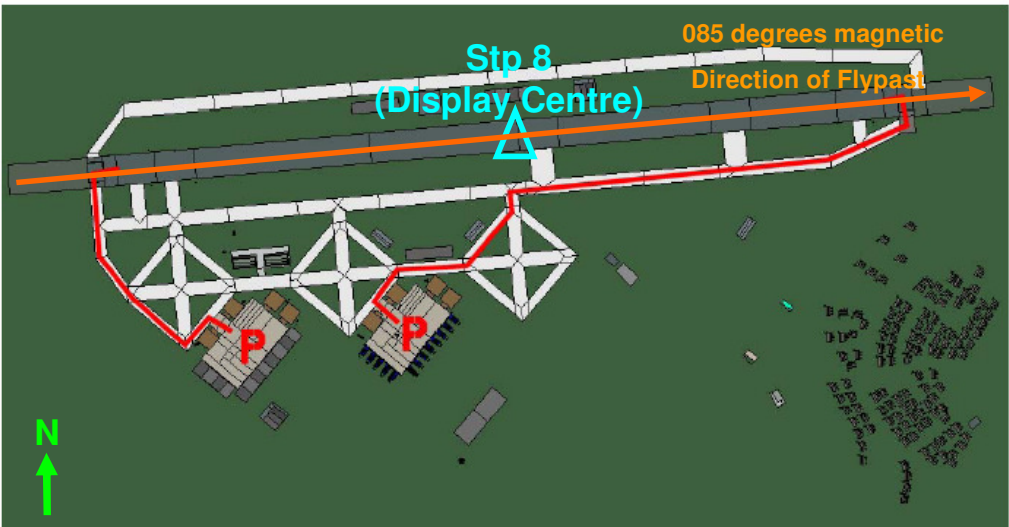


Echelon Right Formation

In Echelon, aircraft maintain the same relative position along the 45 degree line as with Fingertip but the aircraft all form up on the same side as Lead. Here is Echelon Right:



THE FLYPAST



Osan

RWY	LCN	TORA	ASDA	TODA	LDA	WID	ASI	ALS	TDZE	THR PSN
09	-	10570	10570	11620	10040	270	-	-	-	-
27	-	10570	10570	11620	10040	270	-	-	-	-

Tacan 094X (100 NM) ILS 111.3 Owner U.S.
Latitude 37° 04' Longitude 128° 01' Elevation 26ft

| At Stp 7 -

Flight Lead to call pushing Stp 7 on broadcast.

20 miles from Stp 8 - Flight Lead to ensure Flight is in Fingertip formation, on time, on track and at the correct altitude. They should also carry out a visual check to ensure they are going to fly down the centreline of runway 85. From this point on any changes to speed, altitude or course should be small and briefed in advance by the Flight Lead.

10 miles from Stp 8 - **Smoke on** with the Command "xx Flight, Smoke On....Smoke ON, GO". Everyone in the flight switches smoke on (default is CTRL+S) when they hear the Command GO.

3 miles from Stp 8 - From this point on the Flight must only use a maximum power setting of 80% RPM to reduce noise during flypast.

0 miles from Stp 8 - Flight Lead to ensure they reach Stp 8 in Fingertip formation, within +/- 5 secs of their assigned time and at 1500 AMSL.

Stp 9 - **Smoke off** using command "xx Flight, Smoke Off....Smoke Off GO". Everyone in the flight switches smoke off (CTRL+S by default) when they hear the Command GO.

Stp 9 - Use of power settings above 80% RPM are approved once Stp 9 is reached.

MISSING MAN FORMATION



The missing man formation will only be flown by Fury1. All other flights will just conduct the normal flypast in Fingertip Formation.

The missing man is done from Fingertip and the #3 aircraft is the one that moves out of formation (ie the ring finger of the Fingertip). This will leave a clear gap as shown in the picture to the left.

You can view a formation flypast here:
<http://www.youtube.com/watch?v=3M9BPE0DAIE>

Instructions for Missing Man (#3 aircraft only)

The rest of the formation will conduct a standard Fingertip formation flypast. These instructions are for the #3 aircraft only.

3 miles from Stp 8 - **Switch smoke off** and begin a smooth 3-4g pull-up to place the gun cross at 25 degrees on the pitch ladder.

Gun cross at 25 degrees - Hold gun cross at 25 degrees until you reach 6,000 AMSL.

6,000 AMSL - At 6,000ft AMSL, power settings of up to 90% RPM are authorised to maintain airspeed above 300 KCAS.

10,000 AMSL - Once you reach 10,000 AMSL increase to full afterburner and pitch up to put the gun-cross at 60 degrees on the pitch ladder.

Gun cross at 60 degrees - Hold gun cross at 60 degrees pitch with full afterburner until you pass 20,000 AMSL (reduce pitch if necessary to maintain airspeed above 250 KCAS).

20,000ft AMSL - Once at 20,000ft AMSL roll inverted and pull nose down to 5 degrees below horizon. Roll upright, level off and reduce throttle. RPM may be reduce earlier to keep below 400 KCAS.

Stp 9 - Fly straight and level at a maximum airspeed of 400 knots until you reach Stp 9 then re-join your flight ASAP.

THE OVERHEAD CIRCUIT

The Overhead break and circuit is designed to allow aircraft to join the visual circuit in a short space of time. The formation overhead break creates separation between aircraft joining the visual circuit.

Initials Point

The overhead begins at the initials point. For the flypast TE, the initials point is 3 miles from the approach end of the runway (ie the end you are flying to). The Flight Lead must ensure their flight arrives at initials with the following parameters:

- In Echelon Right Formation.
- At 1500 feet AGL. So if field elevation is 200 feet you would fly 1700 on your altimeter.
- At 300 KCAS.
- Lined up on the extended centreline of the in-use runway.

The Flight will then fly 300 KCAS at 1500ft AGL on the runway heading. Flight Lead should aim to fly the formation over the airfield but offset to the right side on the in-use runway by 2-3 runway widths. If the airbase has parallel runways then fly directly over the centreline of the in-use runway.

The Break

Once the Flight Lead reaches a point half way down the runway they should call "One is on the Break" then break left to join the downwind leg of the circuit. #2 should wait for a count of 3 seconds then call "Two on the Break", followed by #3 after a further 3 seconds and finally #4, once again after another 3 seconds.

The break itself is a LEVEL 60 degree, 2-3g turn, rolling out 180 from runway heading. You want to displace yourself about 3/4 of a mile from the runway, assuming no wind.

Downwind

After rolling out from the break you will be on downwind. Every jet has a minimum speed for downwind. For this flight use 250KCAS. Your goal is to be configured, trimmed up, ready to perch. DON 'T GET SLOW. Be careful not to drift one way or another. Pick a point off the nose and fly to it. Don't forget to get your gear DOWN when you are abeam the runway numbers.

The Perch

The perch is where the final turn begins. It is a 180 descending turn using around 1500 feet per minute decent, do not exceed 13° AoA in the F-16. Your goal is to arrive on about a half a mile final. A typical perch point is about when the approach end is 45 degrees off your missile rail.

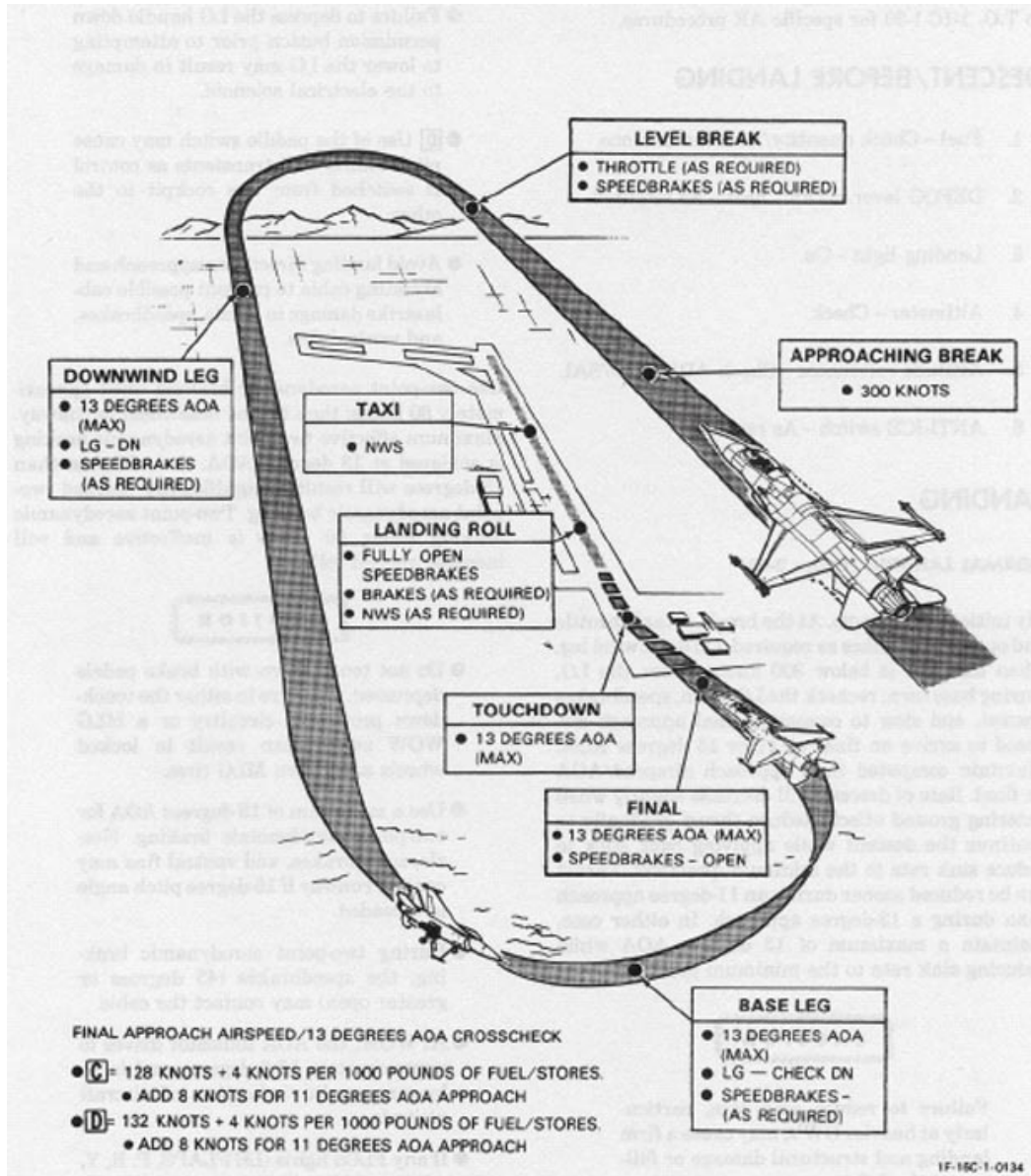
The Final Turn

The final turn is usually between 30-45 degrees of bank. The speed you fly is based on your weight, for this mission 200-220 knots will be adequate. You are flying to a roll out point about a half mile from the end of the runway.

Final

The hard part is over, now you just slow to final airspeed and get your FPM and AOA bracket set as for any normal landing.

The diagram below shows the overhead break and circuit:



TAXI-IN, PARK AND SHUTDOWN

After landing, flight leads should direct their flight to exit the runway and return to the parking area. Note, Flight Leads are to ensure all aircraft have airbrakes closed before exiting the runway. They may also choose to co-ordinate canopy opening during the taxi in and once parked they may also co-ordinate lights off and engine off to finish the formation display.

Everyone should remain in the cockpit until the host calls cleared to exit.